

# A Space Station For America

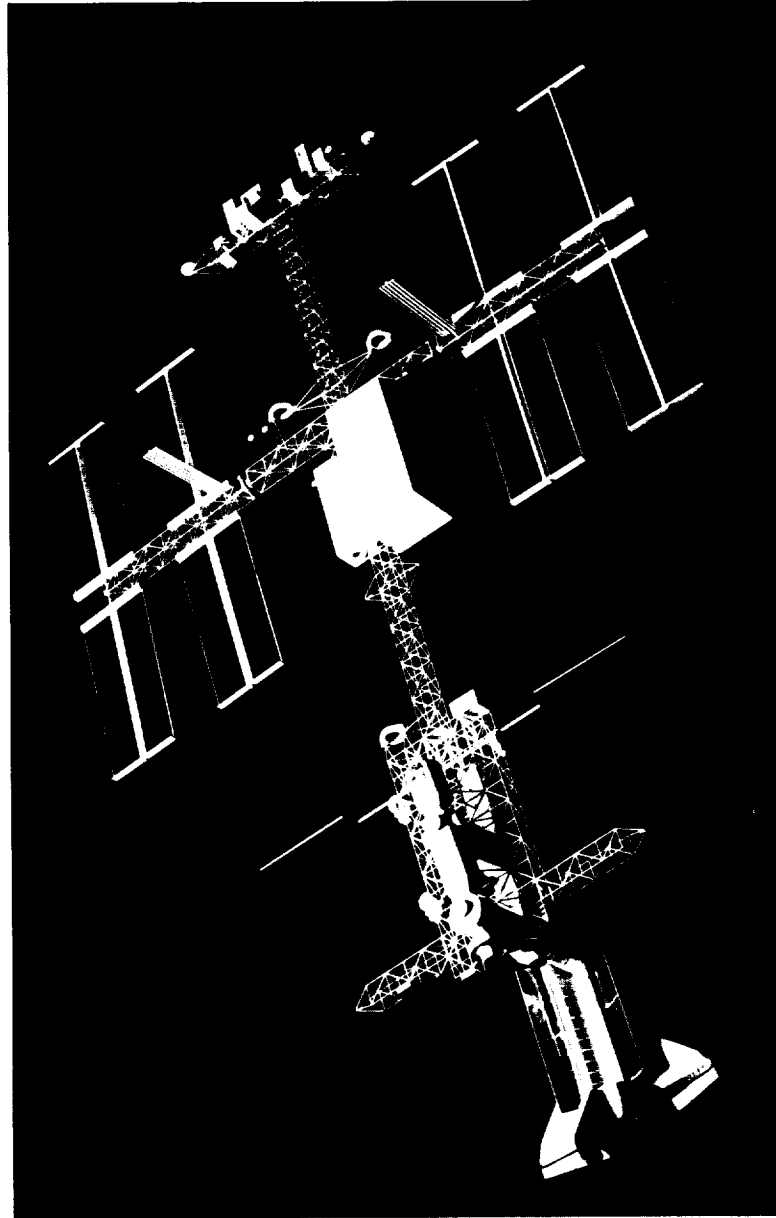
By  
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The next step in space for America is to develop a space station that would provide a permanent presence in orbit around the earth. With such a facility, space would become, like the high seas, a medium for manned operations — advancing our technology, adding to our scientific knowledge, and enhancing our security.

NASA believes that such a space station could be built and placed in orbit early in the 1990's.

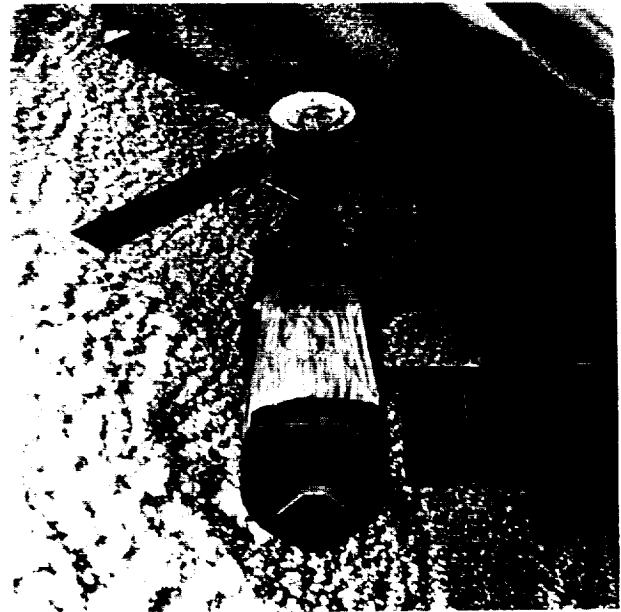
Once before, America developed a space station, though not one designed for permanent presence in space. Skylab was launched on May 14, 1973. Its three-man crew rendezvoused and docked the Apollo command module with the Skylab space station on three different occasions, with mission stay times of 28, 59 and 84 days. Skylab demonstrated that man could function in space over extended periods of time. It showed the utility of men in space for when a solar array failed to extend, astronauts went outside the craft and corrected the problem. It also demonstrated the utility of a scientific laboratory orbiting the earth. Skylab's eight different solar telescopes provided a quantum step in our understanding of the sun, and added significantly to our knowledge of the stars and galaxies. And through the "Earth Resources Experiment Package," Skylab demonstrated the practicality of using space to observe the earth in the visible, infrared, and the microwave regions of the spectrum.

Now a permanently orbiting space station is required. Such a facility, together with the Space Shuttle, would dramatically improve our capabilities to operate in space. We must, as President Reagan said at the conclusion of Columbia's fourth mission, "look aggressively to the future by demonstrating the potential of the Shuttle and establishing a more permanent presence in space."

As a laboratory and as an operations base, the space station will be

- a service center in space, to maintain and repair satellites
- an assembly depot, to store and then assemble structures too large for transportation directly into orbit
- a laboratory in space, for both science and technology
- a transportation node to higher energy orbits, to act as a staging base for "higher" orbits
- a permanent observatory(s) in space, to take full advantage of the unique vantage point space provides

- a communications and data processing node, to serve the increasing complex requirements in these fields
- a storage facility in space, to provide timely and accessible storage of space hardware



Recognizing the need for having men on station in orbit around the earth, the Soviet Union has developed the Salyut class of vehicle to serve both civil and military needs. With Salyut 6 launched in 1977 and Salyut 7 launched in 1982, the Soviets have demonstrated an impressive operational space station capability.

With the Space Shuttle, America has an unrivaled tool for the practical use of space. Conceived originally with a space station in mind, Columbia and her sister ships could routinely deliver payload after payload to the station. New crews, needed supplies, and new instruments could all be shuttled to and from the station as required. No longer limited by stay time in orbit, or by one-time payload limitations, the astronauts could operate in space efficiently and extensively.

In his State of the Union Message of January 25, 1984, President Reagan directed NASA "to develop a permanently manned space station and to do it within a decade." His order set this nation on a course in space that is both bold and imaginative.

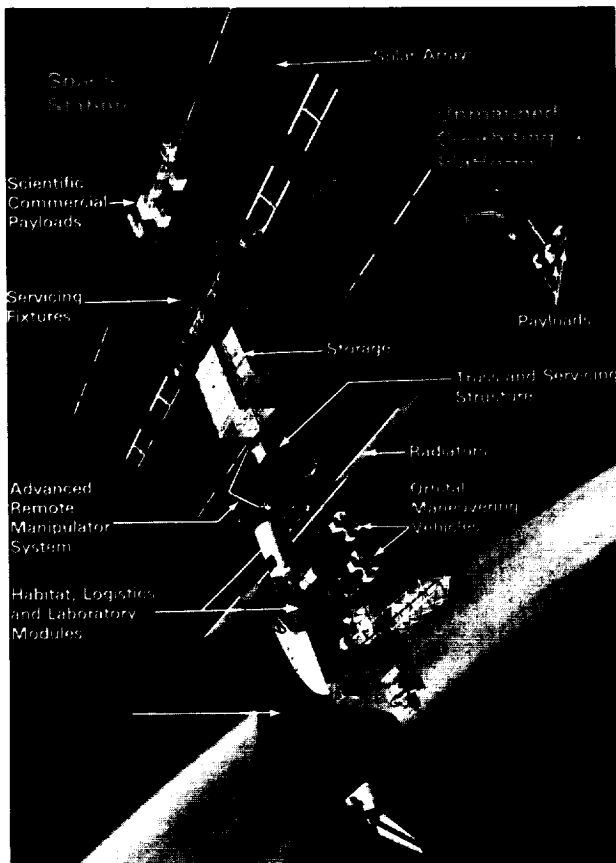
In carrying out the President's directive, with the approval of Congress, NASA launched a two-year extended definition effort to arrive at a space station design that will best serve the requirements of potential customers and other users while reducing the risks of cost overruns and schedule delays.

On September 14, 1984, NASA issued a Request for Proposal to American industry for definition and

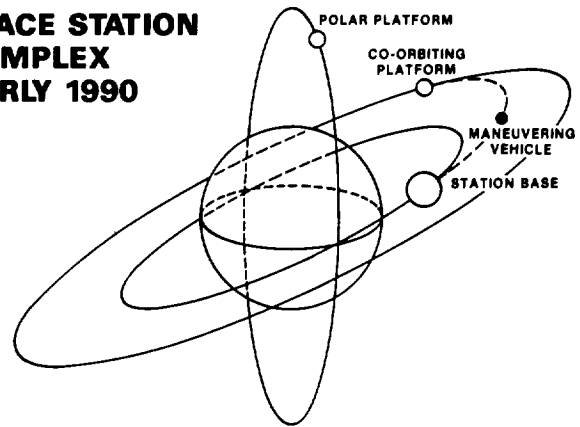
preliminary design of the space station. Contracts for this work were awarded on April 19, 1985, and will be completed 21 months later. At that time, NASA will have a design and will move ahead in 1987 for development and hardware construction. Operation of the initial space station is scheduled to begin in orbit early in the 1990s.

As currently envisioned by NASA, the station would likely be both manned and unmanned. It would, in all probability, consist of several small unmanned systems, dedicated perhaps to astronomy or materials processing, that would both fly in a polar orbit, or in range of a manned element that would serve as a habitat and utility core, as well as a national laboratory for those sciences where man's presence is desired. In this scheme, the space station would be both the manned core and unmanned platforms. The unique advantages of man's presence, as well as the utility of automatic systems, thus could be realized. NASA's challenge is to design a station that takes advantage of both modes of spaceflight, to find the proper mix of man and machine.

In planning for a future space station, NASA is also considering what technologies are required to support a permanent facility. A special steering committee was established to define these requirements and it has presented a plan for their development.



## SPACE STATION COMPLEX EARLY 1990



In addition to directing NASA to put a permanently manned facility in space, the President also invited friends and allies to participate in the space station program. Such international cooperation could range from involvement in the development of the space station itself to use of the completed facility. NASA has signed Memoranda of Understanding with Canada, the European Space Agency and Japan, that provide a framework for cooperation during the definition and preliminary design phase. Of course, concerns over technology transfer, national security and efficient management will be addressed, but I believe — and past cooperative efforts in space seem to support it — that a cooperative venture, mutually beneficial, could be worked out.

The President's space station directive underscores his commitment to maintaining United States leadership in space. A space station must be built if we are to maintain the position of leadership so convincingly demonstrated — in the past by Apollo, and now, most recently, by the flights of Columbia, Challenger and Discovery. This position no longer goes unchallenged. Space is now competitive. The Europeans are flying a workable, efficient launch vehicle called Ariane and are building satellites that match ours in complexity and sophistication. The Soviets have demonstrated their intent to continue an aggressive space program. The Japanese, too, are demonstrating a rapidly growing interest in space, with programs in both launch vehicles and satellites. The Space Shuttle still gives us the edge. No one has anything quite like it. But alone, the Shuttle will not enable the United States to realize the full potential of space. Only a space station, permanently orbiting the earth, can do that. It is, as Jim Beggs, the NASA Administrator, says the next logical step.

